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SUMMATIVE ASSESSMENT-TERM II- 2025-26
CHEMISTRY

Std X   Score: 40
                                                   Time : 1½ Hours

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Instructions

- First fifteen minutes are cool off time. Read the questions carefully and plan the answers during this time.
- Write the answers according to the instructions.
- Consider the score while writing the answers.
- Answer only one choice for questions having choice A and B.

Answer all the questions from 1 to 4. Each question carries 1 score.   (4 x 1 =4)

1. The products of electrolysis of aqueous NaCl are   (1)
    A. Na, H_2 and Cl_2
    B. H_2, Cl_2 and NaCl
    C. H_2, Cl_2 and NaOH
    D. H_2, Cl_2 and HCl

2. Two statements are given.   (1)

   Statement 1 : Octyl ethanoate has the smell of pineapple.

   Statement 2 : For preparing octyl ethanoate, ethanol and octanoic acid are needed.

   Which of the following is correct regarding the given statements?

    A. Statements 1and 2 are not correct.
    B. Statement 1 is correct but statement 2 is not correct.
    C. Statement 2 is correct but statement 1 is not correct
    D. Statement 1 and 2 are correct.

3. Match the following   (1)

A	B
a) 17 g NH_3	i) 6.022×10^{23} atoms
b) 88 g CO_2 at STP	ii) 22.4 L
c) 14 g N	iii) 44.8 L
	iv) 6.022×10^{23} molecules

Choose the correct answer from the options given below.

	(a)	(b)	(c)
A.	(ii)	(i)	(iii)
B.	(i)	(iv)	(iii)
C.	(iv)	(iii)	(i)
D.	(ii)	(iii)	(iv)

E1006 CH   1/4

4. Assertion (A): The last electron of d block elements in 4th period are filled in penultimate shell. (1)

   Reason (R): 3d has more energy than 4s subshell.

   Which of the following is correct?
   A. Both A and R are correct but R is not the correct explanation of A.
   B. A is correct, but R is not correct.
   C. Both A and R are correct and R is the correct explanation of A
   D. Both A and R are not correct

Two questions from 5 to 11 have choice. Each question carries 2 scores. (7x 2 =14)

5. Write the structural formulae of
   a. Pentanal (1)
   b. Pent-2-yne (1)

6. Two statements regarding a particular block of elements are given below.
   i. They are known as inner transition elements.
   ii. Filling up of electrons takes place in anti penultimate shell.
   a. Which is the block of elements described here? (1)
   b. Write any one characteristic property of the elements belong to this block. (1)

7. **(A)** The (n +l) value of two orbitals is 5 each. One of the orbitals has 5 orientations and the other has 3 orientations.
   a. Identify the orbitals. (1)
   b. Which of them has higher energy? Explain the reason. (1)

   OR

   (B) Some information about two subshells are given below.
       i) Shell name : M, number of orientations : 5
       ii) Shell name : N, number of orientations : 1
   a. Represent the given subshells. (1)
   b. Write the maximum number of electrons that can be accommodated in each of these. (1)

8. a) What is a fuel cell? (1)
   b) Write one advantage of fuel cell. (1)

9. **(A)** A saturated organic compound having four carbon atoms and an -OH functional group in a molecule shows position isomerism.
   a. Write the structure of a pair of position isomers fulfilling these conditions. (1)
   b. Write the structure of a functional isomer of this compound. (1)

   OR

   (B) $C_5H_{10}O$ is the molecular formula of a compound which shows position isomerism as well as metamerism.
   Write the structural formulae of two position isomers of this compound and their IUPAC names. (2)

10. A Cu rod is dipped in silver nitrate ($AgNO_3$) solution.

    a. What is the change in colour that takes place in the solution?   (1)

    b. Which metal is oxidised here?   (1)

11. An ore is selected from minerals.

    Write any four qualities of a mineral which is used as an ore to extract a metal   (2)

Two questions from 12 to 17 have choice. Each question carries 3 scores.   **(6x 3 =18)**

12. (A) Starting from ethyne, how will you produce the following?

    a) Ethene   (1)

    b) Polythene   (1)

    c) Chloroethane   (1)

<div align="center">OR</div>

  (B) a) What is condensation polymerisation?   (1)

    b) Write one example for a condensation polymer and write the names
       of its monomers.   (2)

13. a) When a fixed mass of a gas kept at a pressure of 2 atm is heated to a temperature
    of 77°C, its volume became 10 L. What will be its volume when it is cooled
    to a temperature of 7°C at the same pressure?   (2)

    b) State the law related to this situation.   (1)

14. The position of a metal M (Symbol not real) in the periodic table is given below.

    Period : 4

    Group : 11

    a. Write the subshell electron configuration of M.   (1)

    b. Write the subshell electron configuration of M^+ and M^{2+}.   (2)

15. The subshell electron configuration of some elements are given.

    (Symbols are not real)

        A- $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6$

        B- $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^5\ 4s^2$

        C- $1s^2\ 2s^2\ 2p^6$

        D- $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^8\ 4s^2$

    a) Which of them belong to same period?   (1)

    b) Write the group and period of B.   (1)

    c) Select the element which belongs to the same group of A   (1)

16. (A) Two galvanic cells are given
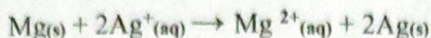
        i) Mg - Cu

        ii) Zn - Cu

    a) Which of them will give higher voltage? Why?   (1)

    b) Write the direction of electron flow in the first cell.   (1)

    c) Write the equation of reaction taking place at the anode of the cell (ii).   (1)
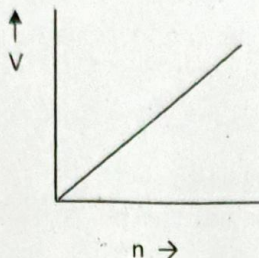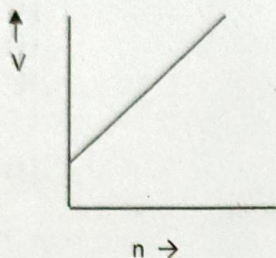
<div align="center">OR</div>

(B)   The redox reaction in a cell is given below.

$$Mg_{(s)} + 2Ag^+_{(aq)} \rightarrow Mg^{2+}_{(aq)} + 2Ag_{(s)}$$

a) Draw the diagram of this cell.   (2)

b) Mark the direction of electric current in this cell.   (1)

17. Two graphs regarding the volume of a gas kept at constant pressure and temperature are given.

Graph A   Graph B

a) Which of these graphs illustrate Avogadro's Law?   (1)

b) State Avogadro law.   (1)

c) If the volume of 20 mole of a gas kept at a fixed temperature and pressure is 640 L,

   What is the volume of 5 moles of gas kept at the same temperature and pressure (1)

Question 18 has choice. It carries 4 scores.   **(1 x 4 =4)**

18. **(A)** The atomic mass of carbon is 12 and that of oxygen is 16

        a) Find the molar mass of CO_2 (1)

        b) What is the volume of 880 g of CO_2 gas kept at STP?   (1)

        c) How many molecules are there in 440 g of CO_2?   (1)

        d) How many grams of carbon should be burnt to get 88 g of CO_2?   (1)

<div align="center">OR</div>

(B) N_2 reacts with H_2 to form NH_3.

    a) Write the balanced chemical equation of this reaction.   (1)

    b) What is the mass of nitrogen required to get 68 g of NH_3 ?
      (atomic mass   N = 14, H = 1)   (1)

    c) How many moles of N_2 will be remained if 60 g of H_2 reacts completely
      with 560 g of N_2 ?   (2)